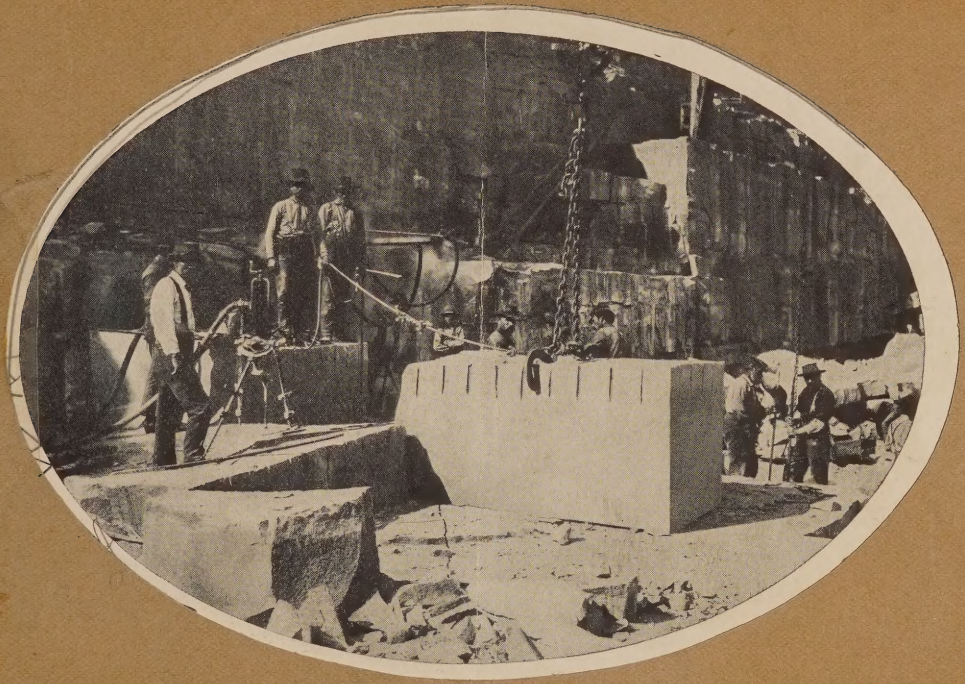


Kettle River Stone

THE

KETTLE RIVER COMPANY

QUARRIES

SANDSTONE, MINN. PORT WING, WIS.

STONE CUTTING PLANTS

MINNEAPOLIS, MINN. SUPERIOR, WIS. SANDSTONE, MINN.

MAIN OFFICE

1111 PLYMOUTH BUILDING, MINNEAPOLIS

BRANCHES

FIRST NATIONAL BANK BUILDING, CHICAGO, ILL.

PIERCE BUILDING, ST. LOUIS, MO.

AVERY LIBRARY
COLUMBIA UNIVERSITY

The Kettle River Company

KETTLE RIVER SANDSTONE is a silica cemented sandstone combining warmth and artistic beauty with the greatest durability. It is composed of more than 90 per cent silica and is free from iron or other corroding substances, clay pockets or pebbles. The original quartz grains have been bounded together by a secondary deposit of silica. These bonds as well as the original quartz grains, are impenetrable by water, consequently it is not affected by frost or weather and does not discolor or disintegrate from natural causes. It is not affected by city gases or any of the acids found in natural state. An interesting test can be made by placing a fragment of the stone in the intense heat of an electric arc light. The stone does not shatter and fly to pieces but is fused and falls in drops of clear crystal glass. This indicates that the stone is not easily affected by fire. Many of the largest and most important buildings in the west have been built of Kettle River stone, while its strength and durability has permitted its use in the place of granite in the heaviest hydraulic and bridge masonry.

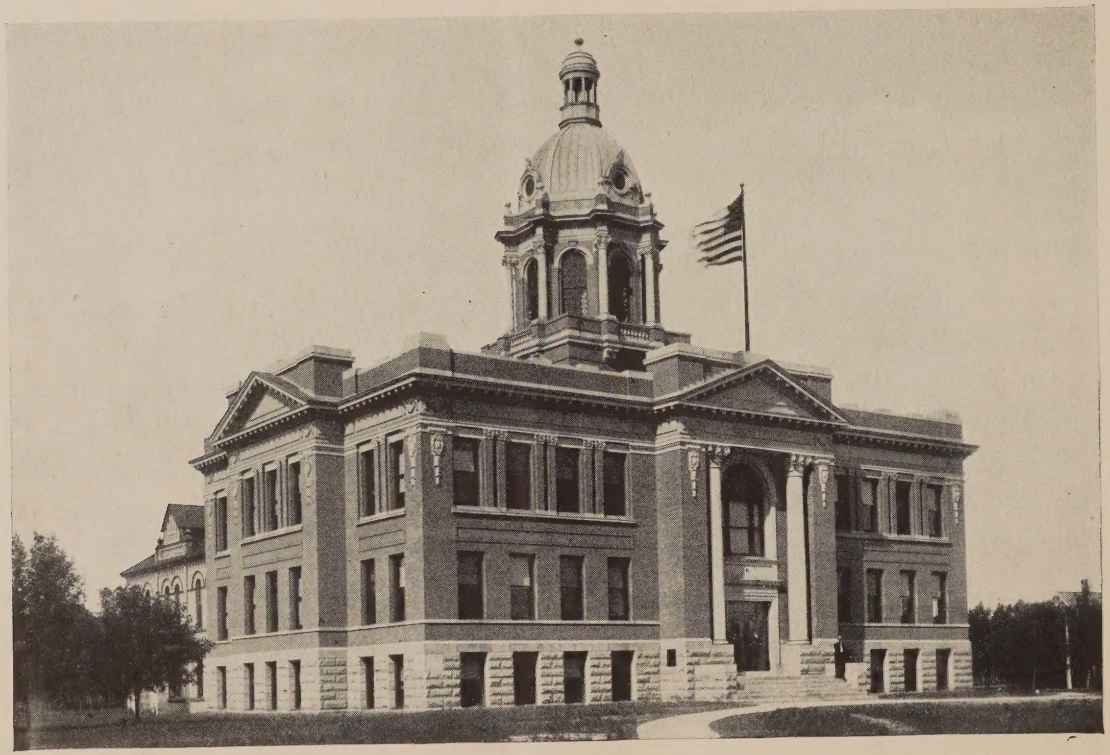
The Kettle River Company

The Kettle River Company

THE KETTLE RIVER QUARRIES are located in a deep gorge of the Kettle River at Sandstone, Minnesota, half way between Minneapolis and Duluth. They have been operated since 1887 and are now the largest and best equipped stone quarries west of the Mississippi River. The average height of the Ledge is about 120 feet and the Company controls more than three miles of quarry face.

The equipment of the quarries is of the latest type and ample for all demands. There are ten separate quarrying plants—having in all over 25 large derricks,—twenty ton capacity—operated by electricity or compressed air; saw mills, two gyratory crushers, large air compressors, dynamos, etc. In the stone cutting department there is a large cutting shed, steam heated for winter work and furnished with diamond saws, rubbing beds, air tools and other modern machinery. There are over five miles of standard gauge track throughout the quarries while two locomotives are kept busy switching cars. A 24 foot stone and concrete dam with turbine water wheels and electric generators furnishes 1,000 horse power for operating machinery at a minimum expense. Over 500 men are employed in the busy season and 1,000 tons is not an unusual day's shipment.

THE KETTLE RIVER COMPANY



Traill County Court House, Hillsboro, N. D. Buechner & Orth, Architects

THE KETTLE RIVER COMPANY

Mr. Geo. W. Bestor, President, Minnesota Sandstone Co.

Dear Sir: We are much pleased with the Kettle River sandstone furnished by you for the exterior of the new Library Building of the University of Illinois.

This stone is of a uniform and pleasing color throughout, of a fine and even grain, practically free from stratifications and entirely without flaws, seams, sandholes, shells and other fossils.

It cuts well, though harder than most sandstones, is well adapted for carving and will apparently be as durable as granite at a very much less cost. Exposure to weather will probably darken its color somewhat, but this will continue harmonious and the stone will not look dirty like white sandstone or limestone. Cement does not appear to stain it easily when used for setting or backing the stone.

No tests of the strength of material have been made by us, but this is certainly ample for all ordinary uses in building and must be nearly equal to that of granite. We believe this sandstone to be the best of all the kinds of building stone offered by the bidders for the construction of the building, and deem the University very fortunate in having selected the Kettle River stone for the building. Yours very truly, RICKER & WHITE.

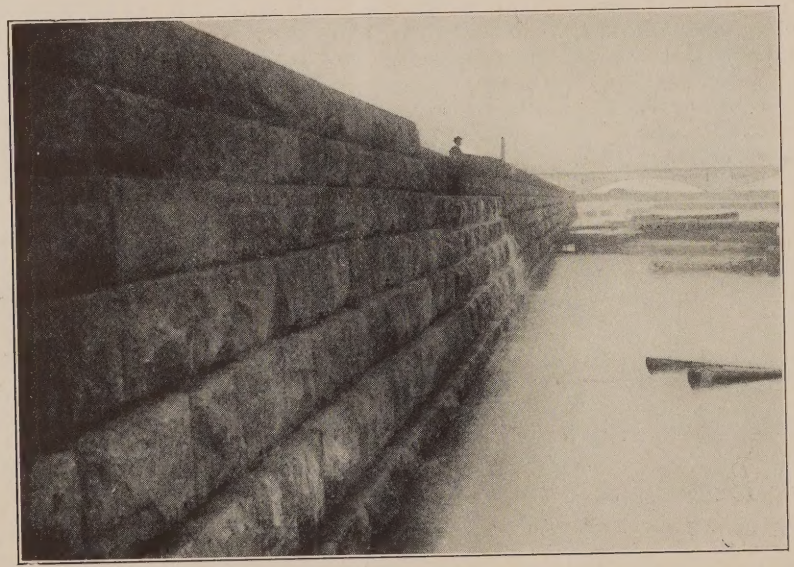
August 15th, 1898.

Gentlemen: The Kettle River sandstone furnished by you for the Library building at the University of Illinois, shows after nearly two years exposure, almost the same brightness of color that it did when first quarried. We are very much gratified with the color effect of this stone. Yours very truly, RICKER & WHITE.

Kettle River Quarries Co., Minneapolis, Minn. Urbana, Ill., Nov. 20th, 1909.

Gentlemen: In reply to yours of Nov. 17th, I desire to state that the Kettle River sandstone used for the Library Building of this University has endured exposure very well since the completion of the building. Like all stone, it has darkened considerable by dust and smoke, and the yellowish tinge in warm weather and the slight reddish color in frosty weather have disappeared. But it has not darkened as much as Bedford stone usually does. I regard it as a durable and satisfactory building stone. Yours truly, N. CLIFFORD RICKER,
Professor of Architecture.

THE KETTLE RIVER COMPANY



Dam in Mississippi River, St. Anthony Falls, Minneapolis. Built in 1894.
As good as new now.

THE KETTLE RIVER COMPANY

Kettle River Quarries Co.,[r]Minneapolis, Minn. Washington, D. C., February 19, 1909.

Gentlemen: The six-inch cube of Kettle River sandstone mentioned in your letter of February 1st to Dr. George P. Merrill, has been examined and he has furnished the following concerning it:

> "Under the microscope it is seen to consist almost wholly of rounded and irregular quartz grains lying in close contact and with comparatively little interstitial material, though the individual granules show at times a very narrow border of secondarily deposited silica. The stone is sufficiently soft to carve readily, yet, for a sandstone, not markedly friable or absorptive. Tests on rough chips (which can be considered only as approximations) show about 4 per cent by weight of water taken up on complete immersion. The color, a delicate pinkish-brown, is very pleasing, and would tend to enliven structures erected of it, and greatly heighten their artistic effect."

Dr. Merrill furthermore states that while he makes it a rule never to commit himself as to the weathering qualities of stone from a mere examination of selected samples, it seems safe to say that, if the cube sent is representative, the stone is admirably adapted for all ordinary construction.

With your permission the specimen will be retained for the Museum collections.

Very respectfully yours,

(Signed) W. de C. Ravanel,

Administrative Assistant.

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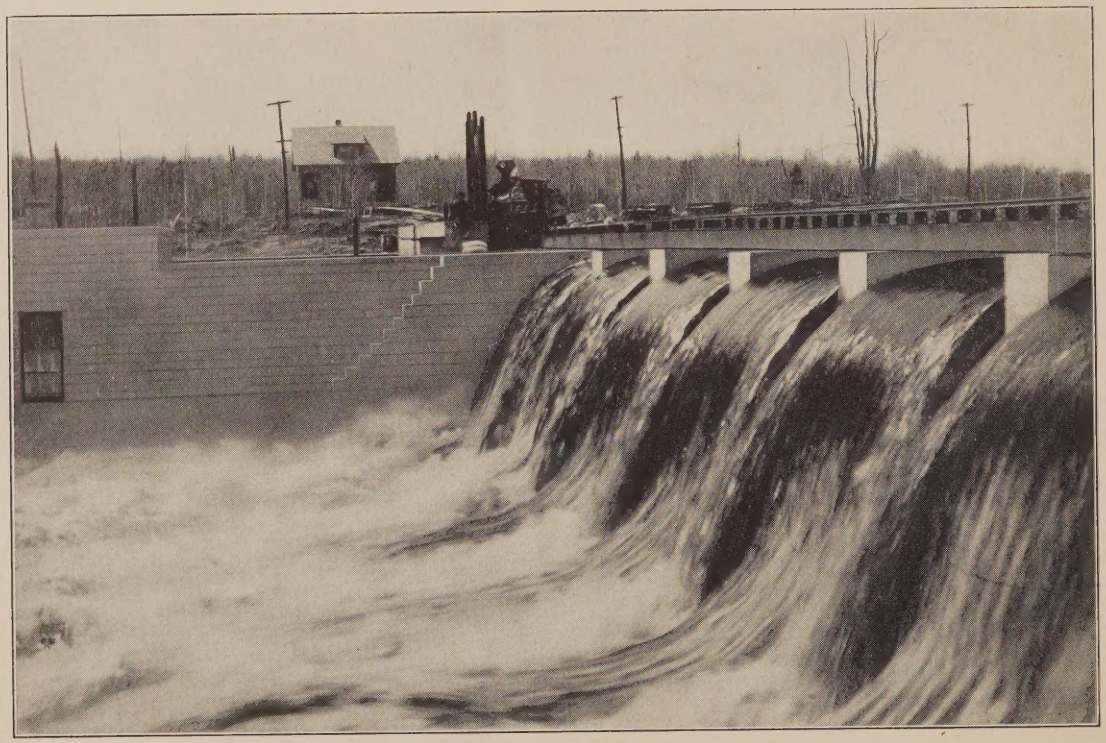
The Kettle River Company



Hydro-Electric Plant at Sandstone Quarries.

AVERY LIBRARY
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THE KETTLE RIVER COMPANY

Kettle River Quarries Co., Minneapolis, Minn. Minneapolis, Minn., Sept. 11, 1901

Gentlemen: On March 7, 1894, I wrote you a letter with reference to the quality and character of the Kettle River sandstone we purchased from you, and which was used in the construction of a stone dam 540 feet long and 18 feet high, on the west side of the Mississippi River in this city.

After this date, after seven years of hard usage, we can substantiate every word we said regarding the quality of the Kettle River sandstone.

We have also used it in the construction of the piers and arches of our large power house, built in 1896, with equal good results.

There is no evidence that freezing or scouring has affected any of our Kettle River stone in the least degree, while all other stone work on our works, with the exception of granite, has shown deterioration.

We regard our Kettle River sandstone as well adapted to all kinds of masonry in connection with hydraulic work, bridge piers, foundation piers, dams and similar structures.

Respectfully yours,

ST. ANTHONY FALLS WATER POWER CO.

(Signed) WM. DE LA BARRE.

Engr. Agt. and Treas.

Kettle River Quarries Co., Minneapolis, Minn. Minneapolis, Nov. 18, 1909.

Gentlemen: Replying to your esteemed favor of the Nov. 17th, we are pleased to comply with your inquiry with reference to character and durability of your Kettle River sandstone which we have used in our construction work.

We cannot do any better than to cheerfully and unqualifiedly reiterate all statements made to you in our letter of Sept.11th, 1901.

After fifteen years of hard usage the Kettle River stone masonry at our works is just as good as new, and wear and tear of same by the elements, and other sources, appears to be substantially nil, as anyone may see upon examination.

Very respectfully yours, WM. DE LA BARRE.

The Kettle River Company

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U. S. Government Monument at Sioux City, Iowa, in memory Capt. Flloyd, of Lewis & Clark Expedition. Height, 110 feet.

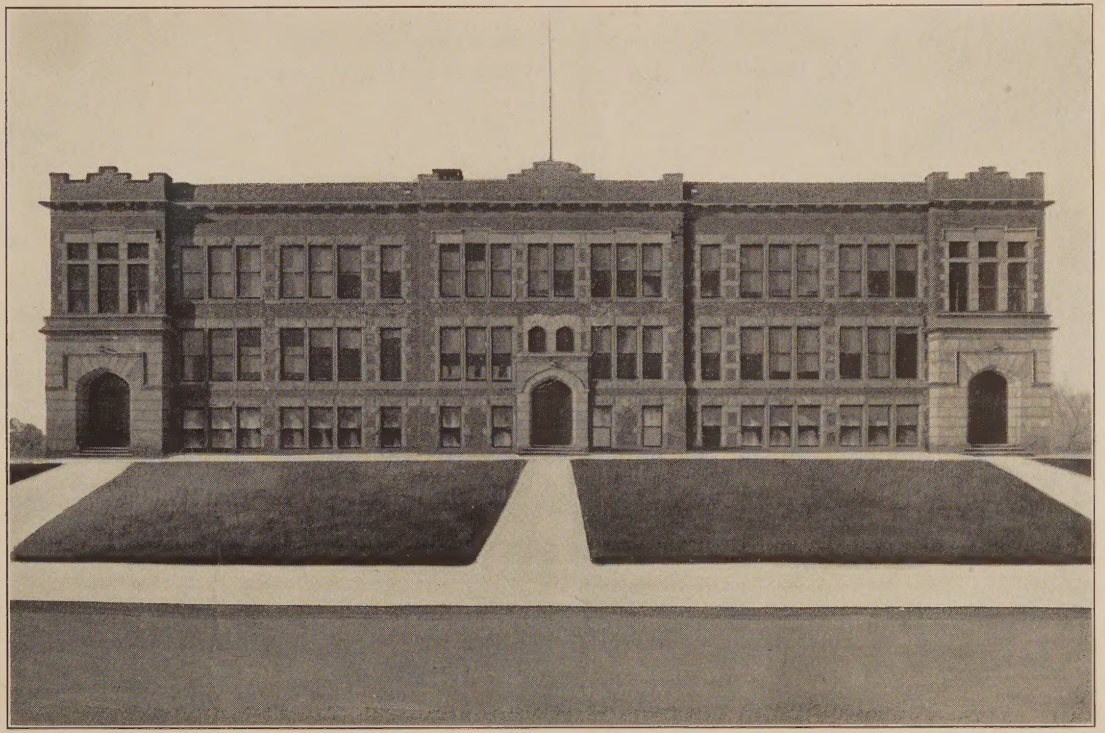
The Kettle River Company

Interior United Presbyterian Church, Worcester, Mass. Kettle River Sandstone Pillars.

The Kettle River Company

Benton County Court House, Vinton, Iowa.

The Kettle River Company



Fair Oaks School, Minneapolis.

THE KETTLE RIVER COMPANY

REPORT OF TESTS

At United States Arsenal, Watertown, Massachusetts,
November 19, 1894.

TESTS BY COMPRESSION.

Compressed surfaces faced with plaster of Paris to secure even bearings in the testing machine.

No. of Test	Color	Dimensions in inches			Sectional Area Sq. Ins.	First Crack lbs.	Ultimate Strength	
		Height	Compressed Surface				Total lbs.	Per sq. in. lbs.
7487	Salmon	4.06	4.12	4.03	16.60	191,000	204,100	12,295
7488	Salmon	4.00	4.05	4.05	16.40	195,000	209,900	12,799

CHEMICAL ANALYSIS

SILICA	SiO_2 - - - -	97.10
ALUMINA	Al_2O_3 - - - -	2.20
LIME	CaO - - - -	0.60
MAGNESIA	MgO - - - -	0.10

Correct
J. E. HOWARD.

J. M. REILLY,
Major Ordnance Dept., U. S. A.
Commanding.

AT
930
K5
190

BUILDING STONE PAVING

SAWED STONE CURBING BRIDGE STONE

CROSSWALKS

RUBBLE CRUSHED ROCK

WRITE US FOR ESTIMATE ON YOUR BUILDING

AVERY LIBRARY
COLUMBIA UNIVERSITY